

## Memorandum

February 22, 2019

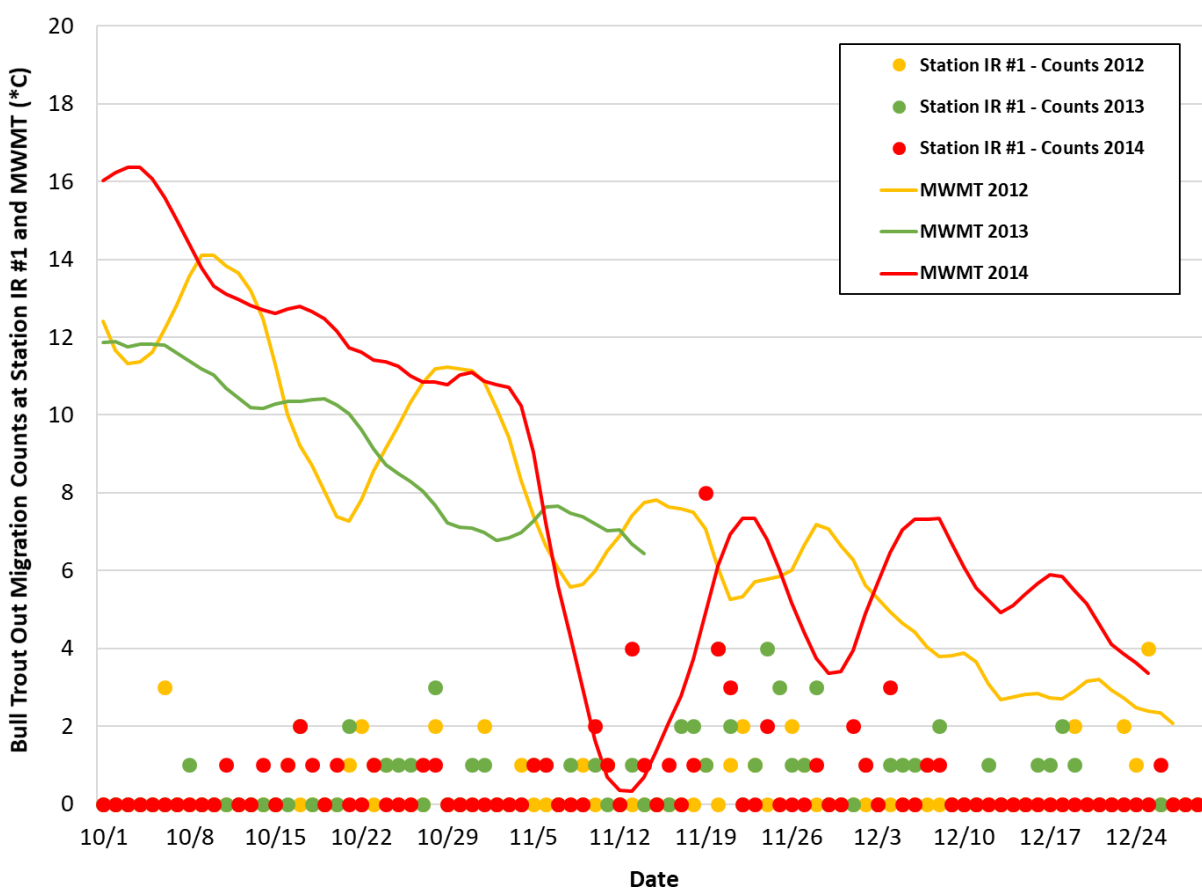
To: Rochelle Labiosa, R10EPA

From: Peter Leinenbach, R10EPA

**Subject:** Plotting of Imnaha River Maximum Weekly (7-Day Average) Maximum Water Temperatures and reported Bull Trout outmigration counts at Station IR #1 during the fall.

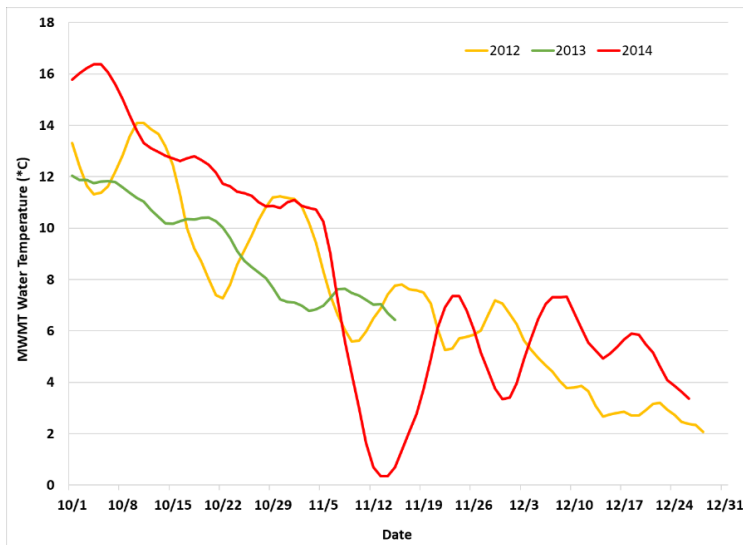
**Results** - Hourly Imnaha River water temperature data, along with daily Bull Trout outmigration counts at the most downstream site within the Imnaha River (IR#1), was obtained from Idaho Power. The total number of new daily Bull Trout outmigration counts and calculated Maximum Weekly (7-Day Average) Maximum Water Temperature (MWMT) statistics for the fall period in 2012 through 2014 are presented in **Figure 1**.

**Figure 1.** The total number of new daily Bull Trout outmigration counts and calculated Maximum Weekly (7-Day Average) Maximum Water Temperature (MWMT) statistics in the Imnaha River for the fall period of 2012 through 2014.



**Methods** – Fall period (i.e., post October 1<sup>st</sup>) MWMT statistics were estimated for the Imnaha River from hourly temperature data provided to EPA from Idaho Power (**Figure 2**). Please note that temperature data was not available for the fall period for the entire 2011, and part of fall period of 2013.

**Figure 2.** Calculated MWMT Statistics for the Imnaha River.



The total number of new daily Bull Trout outmigration counts were plotted for the Imnaha River for the 2010 through 2015 period (**Figure 3**). There are two distinct elevated count periods – spring and fall. Please note that there is a full season of spawning data for 2011 (i.e., purple dots in **Figure 3**), however there was no temperature data collected during this period. In addition, please note that Bull Trout outmigration data was only collected for a few weeks in 2010 and 2015. Accordingly, a comparison between the MWMT statistic (see **Figure 2**) and migration counts (see **Figure 3**) were implemented for the fall period when both dataset were available (e.g., 2012, 2013, and 2014) (see **Figure 1**).

**Figure 3.** The total number of new daily Bull Trout outmigration counts in the Imnaha River for the 2010 through 2015 period.

